

=> fil reg  
FILE 'REGISTRY' ENTERED AT 15:46:30 ON 31 OCT 2007  
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STRUCTURE FILE UPDATES: 29 OCT 2007 HIGHEST RN 951883-76-4  
DICTIONARY FILE UPDATES: 29 OCT 2007 HIGHEST RN 951883-76-4

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<http://www.cas.org/support/stngen/stndoc/properties.html>

=> d his nofile  
(FILE 'HOME' ENTERED AT 15:01:30 ON 31 OCT 2007)  
  
FILE 'HCAPLUS' ENTERED AT 15:01:37 ON 31 OCT 2007  
L1 1 SEA ABB=ON PLU=ON US2006204202/PN  
SEL RN  
  
FILE 'REGISTRY' ENTERED AT 15:02:14 ON 31 OCT 2007  
L2 20 SEA ABB=ON PLU=ON (120-12-7/BI OR 217-59-4/BI OR  
229-87-8/BI OR 230-27-3/BI OR 230-46-6/BI OR 243-17-4/BI  
OR 271-58-9/BI OR 271-89-6/BI OR 271-95-4/BI OR 3682-35-7  
/BI OR 477-75-8/BI OR 493-77-6/BI OR 56-55-3/BI OR  
66-71-7/BI OR 82-05-3/BI OR 85-01-8/BI OR 86-73-7/BI OR  
9011-14-7/BI OR 92-24-0/BI OR 92-82-0/BI)  
D SCA  
  
L3 1 SEA ABB=ON PLU=ON 229-87-8/RN  
D SCA  
L4 1 SEA ABB=ON PLU=ON BENZOFURAN/CN  
D SCA  
L5 1 SEA ABB=ON PLU=ON BENZOXAZOLE/CN  
D SCA  
L6 1 SEA ABB=ON PLU=ON 217-59-4/RN  
D SCA  
L7 1 SEA ABB=ON PLU=ON 86-73-7/RN  
D SCA  
L8 1 SEA ABB=ON PLU=ON 85-01-8/RN  
D SCA  
L9 1 SEA ABB=ON PLU=ON 230-46-6/RN  
D SCA  
L10 1 SEA ABB=ON PLU=ON 66-71-7/RN  
D SCA

L11           1 SEA ABB=ON PLU=ON 56-55-3/RN  
       D SCA  
 L12           1 SEA ABB=ON PLU=ON "11H-BENZO(A) FLUORENE"/CN  
       D SCA  
 L13           10 SEA ABB=ON PLU=ON (L3 OR L4 OR L5 OR L6 OR L7 OR L8 OR  
               L9 OR L10 OR L11 OR L12)

FILE 'HCAPLUS' ENTERED AT 15:30:01 ON 31 OCT 2007

L14          44811 SEA ABB=ON PLU=ON L13  
 L15          QUE ABB=ON PLU=ON WAVEGUID? OR (WAVE# OR WAVING) (2A) GUI  
       D?  
 L16          24 SEA ABB=ON PLU=ON L14 AND L15  
 L17          QUE ABB=ON PLU=ON OPTIC? OR LIGHT? OR SPECTROSCOP?  
 L18          24 SEA ABB=ON PLU=ON L16 AND L17  
 L19          15 SEA ABB=ON PLU=ON L18 AND (PY<=2003 OR PRY<=2003 OR  
               AY<=2003)  
 L20          1 SEA ABB=ON PLU=ON "11H-BENZO(B) FLUORENE"/CN  
 L21          600 SEA ABB=ON PLU=ON L20  
 L22          1 SEA ABB=ON PLU=ON L21 AND L15  
 L23          15 SEA ABB=ON PLU=ON L19 OR L22  
 L24          14 SEA ABB=ON PLU=ON L23 NOT L1

=> fil hap  
 'HAP' IS NOT A VALID FILE NAME  
 SESSION CONTINUES IN FILE 'REGISTRY'  
 Enter "HELP FILE NAMES" at an arrow prompt (>) for a list of files  
 that are available. If you have requested multiple files, you can  
 specify a corrected file name or you can enter "IGNORE" to continue  
 accessing the remaining file names entered.

=> fil hcap  
 FILE 'HCAPLUS' ENTERED AT 15:46:35 ON 31 OCT 2007  
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FILE COVERS 1907 - 31 Oct 2007 VOL 147 ISS 19  
 FILE LAST UPDATED: 30 Oct 2007 (20071030/ED)

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This file contains CAS Registry Numbers for easy and accurate substance identification.

=> => fil hcap  
 FILE 'HCAPLUS' ENTERED AT 15:52:49 ON 31 OCT 2007  
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FILE COVERS 1907 - 31 Oct 2007 VOL 147 ISS 19  
 FILE LAST UPDATED: 30 Oct 2007 (20071030/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d l24 ibib abs hitstr hitind 1-14

L24 ANSWER 1 OF 14 HCPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2005:474844 HCPLUS  
 DOCUMENT NUMBER: 143:3696  
 TITLE: Method and apparatus using a surface-selective nonlinear optical technique for detection of probe-target interactions without labels  
 INVENTOR(S): Salafsky, Joshua S.  
 PATENT ASSIGNEE(S): USA  
 SOURCE: U.S. Pat. Appl. Publ., 46 pp., Cont.-in-part of U.S. Ser. No. 907,038, abandoned.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2005118731	A1	20050602	US 2004-970754	200410 21
US 2002127563	A1	20020912	US 2001-907038	200107 17
PRIORITY APPLN. INFO.:			US 2001-260261P	P 200101 08
			US 2001-260300P	P 200101 08
			US 2001-262214P	P

200101

17

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US 2001-907038

B2

200107

17

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AB A surface-selective nonlinear optical technique, such as second harmonic or sum frequency generation, is used to detect target-probe binding reactions or their effects, at an interface, in the presence of indicators. In addition, the direction of the nonlinear light is scattered from the interface in a well-defined direction and therefore its incidence at a detector some distance from the interface may be easily mapped to a specific and known location at the interface.

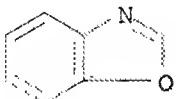
IT 273-53-0D, Benzoxazole, derivs.

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)

(method and apparatus using a surface-selective nonlinear optical technique for detection of probe-target interactions without labels)

RN 273-53-0 HCAPLUS

CN Benzoxazole (CA INDEX NAME)



IC ICM G01N033-543

INCL 436518000

CC 9-1 (Biochemical Methods)

Section cross-reference(s): 1

ST app nonlinear optics probe target interaction detection

IT Cyanine dyes

(hemicyanine; method and apparatus using a surface-selective nonlinear optical technique for detection of probe-target interactions without labels)

IT Cell

Charge coupled devices

Cyanine dyes

Drug screening

Drugs

Fiber optics

Fluorescent indicators

Liposomes

Optical waveguides

Sum-frequency generation

Surface plasmon resonance

Virus

(method and apparatus using a surface-selective nonlinear optical technique for detection of probe-target interactions without labels)

IT Antibodies and Immunoglobulins

Antigens

Carbohydrates, biological studies

G protein-coupled receptors

Hormones, animal, biological studies

Nucleic acids

Nucleosides, biological studies

Oligosaccharides, biological studies

Peptide nucleic acids

Proteins

Receptors

Toxins

RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (method and apparatus using a surface-selective nonlinear  
 optical technique for detection of probe-target  
 interactions without labels)

IT Polarizability

(optical, hyperpolarizability; method and apparatus using a  
 surface-selective nonlinear optical technique for  
 detection of probe-target interactions without labels)

IT Ion channel

RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (receptors; method and apparatus using a surface-selective nonlinear  
 optical technique for detection of probe-target  
 interactions without labels)

IT 61-73-4, Methylene blue 79-41-4D, Methacrylic acid, salts and  
 esters, polymers of 92-84-2D, Phenothiazine, reaction with  
 stilbazole 198-55-0D, Perylene, derivs. 273-53-0D,  
 Benzoxazole, derivs. 288-42-6D, Oxazole, derivs. 1283-93-8  
 2321-07-5D, Fluorescein, derivs. 5998-92-5D, 5-aryl derivative  
 38620-93-8D, Stilbazole, reaction with phenothiazine 70380-75-5D,  
 2-aryl derivative

RL: ARG (Analytical reagent use); ANST (Analytical study); USES  
 (Uses)  
 (method and apparatus using a surface-selective nonlinear  
 optical technique for detection of probe-target  
 interactions without labels)

L24 ANSWER 2 OF 14 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:913395 HCAPLUS

DOCUMENT NUMBER: 139:393104

TITLE: Kit for bioaffinity assay development and serial  
 analysis including arrays of reference substance

INVENTOR(S): Duveneck, Gert L.; Oroszlan, Peter; Pawlak,  
 Michael

PATENT ASSIGNEE(S): Zeptosens A.-G., Switz.

SOURCE: PCT Int. Appl., 85 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2003096018	A2	20031120	WO 2003-EP4717	200305 06
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WO 2003096018	A3	20040318		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,				

NO, NZ, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TR, TT,  
 TZ, UA, UG, US, UZ, VN, YU, ZA, ZW  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,  
 BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,  
 EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,  
 SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,  
 NE, SN, TD, TG

AU 2003242251 A1 20031111 AU 2003-242251

200305  
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EP 1506403 A2 20050216 EP 2003-729981

200305  
06

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
 PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU,  
 SK

US 2005163659 A1 20050728 US 2004-514166

200411  
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PRIORITY APPLN. INFO.:

CH 2002-791

A  
200205  
13

WO 2003-EP4717

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200305  
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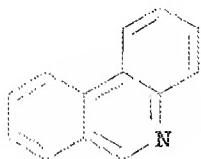
**AB** The invention relates to a kit for assay development and for carrying out a plurality of analyses, comprising: a carrier substrate and a placement body jointly forming an arrangement of a plurality of sample containers, consisting of said carrier substrate as a base plate, in addition to a plurality of immobilized bonding partners for the detection of one or several analytes in one or several samples in a bioaffinity assay, said bonding partners being arranged and immobilized on the carrier substrate inside the sample containers in resp. two-dimensional arrays of discrete measuring areas, wherein resp. at least one measuring area of an array or a partial surface inside an array or sample container is provided on the carrier substrate for referencing purposes, and the surface d. of the immobilized bonding partners, in relation to the surface of the measuring areas, is less than the surface d. of a full, i.e. extensive monolayer of said bonding partners. The composition of the inventive kit is such that, surprisingly, it enables a full series of measurements to be carried out on an individual carrier substrate. The invention also relates to an anal. system wherein the inventive kit is used, and to anal. detection methods based thereon and the use thereof. Thus an array kit was prepared for the determination of IL-4 using immobilized antibodies to IL-4. Thus a glass substrate, that had been previously modulated with gratings was coated with a tantalum pentoxide layer; the hydrophilic metal oxide surface was coated with a self-assembled mono-dodecyl phosphate layer and plotted in arrays with monoclonal mouse antibodies of various concns. Reference arrays were plotted along the antibody arrays; the reference substance was Cy5-BSA.

**IT** 229-87-8D, Phenanthridine, derivs., alkaloids  
 271-89-6D, Benzofuran, derivs.

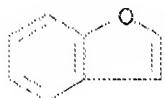
RL: ANT (Analyte); ARG (Analytical reagent use); ANST (Analytical

study); USES (Uses)  
 (kit for bioaffinity assay development and serial anal. including  
 arrays of reference substance)

RN 229-87-8 HCAPLUS  
 CN Phenanthridine (CA INDEX NAME)



RN 271-89-6 HCAPLUS  
 CN Benzofuran (CA INDEX NAME)



IC ICM G01N033-543  
 ICS C12Q001-68  
 CC 9-1 (Biochemical Methods)  
 Section cross-reference(s): 3, 4, 5, 17  
 IT Affinity  
 Agrochemicals  
 Aptamers  
 Blood analysis  
 CCD cameras  
 Clinical analysis  
 DNA microarray technology  
 Diagnosis  
 Diffraction gratings  
 Drug screening  
 Egg white  
 Egg yolk  
 Environmental analysis  
 Eubacteria  
 Fluorometry  
 Food analysis  
 Human  
 Immunoassay  
 Nucleic acid hybridization  
 Optical waveguides  
 Photodiodes  
 Photolithography  
 Plant analysis  
 Protein microarray technology  
 Saliva  
 Salmonella  
 Self-assembly  
 Soil analysis  
 Surfactants  
 Test kits  
 Transparency

## Urine analysis

## Virus

(kit for bioaffinity assay development and serial anal. including arrays of reference substance)

IT 57-50-1, Sugar, analysis 74-86-2D, Acetylene, derivs. 76-78-8D, Quassin, derivs. 84-65-1D, Anthraquinone, derivs. 87-66-1, Pyrogallol 90-47-1, 9-Oxoxanthene 90-47-1D, Xanthenone, derivs. 91-22-5D, Quinoline, derivs. 91-64-5D, 2H-1-Benzopyran-2-one, derivs. 94-41-7D, Chalcone, derivs. 106-57-0D, Diketopiperazine, derivs. 107-43-7D, Betaine, derivs. 108-73-6D, Phloroglucine, derivs. 109-97-7D, Pyrrole, derivs. 119-61-9D, Benzophenone, derivs. 120-72-9D, Indole, derivs. 120-80-9D, Catechol, derivs. 123-31-9D, Hydroquinone, derivs. 130-15-4D, 1,4-Naphthalenedione, derivs. 229-87-8D, Phenanthridine, derivs., alkaloids 271-89-6D, Benzofuran, derivs. 288-32-4D, Imidazole, derivs., alkaloids 524-97-0D, Pterocarpine, derivs. 544-25-2D, Tropilidene, derivs., alkaloids 588-59-0D, Stilbene, oligo derivs. 970-73-0D, Gallocatechin, derivs. 5375-87-1D, Pyranocoumarin, derivs. 8001-81-8D, Carboline, derivs. 9004-34-6D, Cellulose, derivs. 9005-25-8, Starch, analysis 9005-32-7D, Alginic acid, derivs. 20342-64-7D, 1H-Indole-4,7-dione, derivs. 29565-36-4D, Cardenolide, derivs. 62996-74-1D, Staurosporine, derivs. 79392-34-0, Saframycin

RL: ANT (Analyte); ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)

(kit for bioaffinity assay development and serial anal. including arrays of reference substance)

L24 ANSWER 3 OF 14 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:506901 HCAPLUS

DOCUMENT NUMBER: 139:92495

TITLE: Plastic optical waveguiding material and optical waveguide

INVENTOR(S): Miyao, Kenji

PATENT ASSIGNEE(S): Sumitomo Bakelite Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003185857	A	20030703	JP 2001-380649	200112 13

PRIORITY APPLN. INFO.: JP 2001-380649

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13

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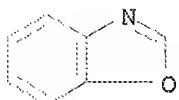
AB The invention refers to a plastic optical waveguiding material and optical waveguide

, comprising polyoxazole compound with repeating unit

- (C:ONHXNHC:OY)n- [n = 1 - 1000; X = divalent organic group; Y = n-alkane, hexane, halo-substituted or unsubstituted Ph, naphthalene, or two Ph rings bridged by O, SO<sub>2</sub> or halo].

IT 273-53-0, Benzoxazole

RL: DEV (Device component use); USES (Uses)  
 (derivs., polymers; plastic optical waveguiding  
 material and optical waveguide)  
 RN 273-53-0 HCAPLUS  
 CN Benzoxazole (CA INDEX NAME)



IC ICM G02B006-12  
 ICS C08G073-22; G02B006-13  
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 ST polymer optical waveguide polybenzoxazole  
 IT Optical waveguides  
 (polymeric; plastic optical waveguiding material and optical waveguide)  
 IT 273-53-0, Benzoxazole  
 RL: DEV (Device component use); USES (Uses)  
 (derivs., polymers; plastic optical waveguiding material and optical waveguide)  
 IT 31475-82-8 32201-94-8D, polybenzoxazoles 72123-18-3D,  
 polybenzoxazoles 325828-94-2 554455-41-3 554455-43-5  
 554455-44-6 554455-50-4D, polybenzoxazoles 554455-52-6D,  
 polybenzoxazoles 554455-54-8D, polybenzoxazoles  
 RL: DEV (Device component use); USES (Uses)  
 (plastic optical waveguiding material and optical waveguide)

L24 ANSWER 4 OF 14 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2003:497449 HCAPLUS  
 DOCUMENT NUMBER: 139:44221  
 TITLE: Preparation of photo-sensitive SiO<sub>2</sub> gel film for fine-patterning in manufacture of optical waveguide  
 INVENTOR(S): Zhao, Gaoyang; Zhao, Guirong; Hu, Xiongwei  
 PATENT ASSIGNEE(S): Xian University of Sciences & Technology, Peop. Rep. China  
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 16 pp.  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Chinese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PRIORITY APPLN. INFO.: CN 2001-145262				200112 28

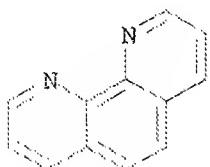
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AB The photo-sensitive film is prepared by stirring a solution containing tetraethoxysilane 1, H<sub>2</sub>O 2-4, HCl 0.05-0.2, ethanol 10-40, and phenanthroline 0.5-2 parts for 4 h, and forming a film on a glass of Si substrate by pulling method. The prepared film is soluble in ethanol but insol. after UV irradiation, and fine patterns are thus manufactured

IT 66-71-7, 1,10-Phenanthroline  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (preparation of photo-sensitive SiO<sub>2</sub> gel film for fine-patterning)

RN 66-71-7 HCPLUS

CN 1,10-Phenanthroline (CA INDEX NAME)



IC ICM G03F007-004  
 ICS G03F007-16

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT Waveguides  
 (preparation of photo-sensitive SiO<sub>2</sub> gel film for fine-patterning in manufacture of optical waveguide)

IT 66-71-7, 1,10-Phenanthroline  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (preparation of photo-sensitive SiO<sub>2</sub> gel film for fine-patterning)

L24 ANSWER 5 OF 14 HCPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:522159 HCPLUS  
 DOCUMENT NUMBER: 137:59858  
 TITLE: Method and apparatus using a surface-selective nonlinear optical technique  
 INVENTOR(S): Salafsky, Joshua S.  
 PATENT ASSIGNEE(S): USA  
 SOURCE: PCT Int. Appl., 88 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2002054071	A1	20020711	WO 2001-US22441	200107 17

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 GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,  
 LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
 NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR,  
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CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE,  
 TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,  
 TD, TG

CA 2434076 A1 20020711 CA 2001-2434076  
 200107  
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AU 2001276947 A1 20020716 AU 2001-276947  
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EP 1358482 A1 20031105 EP 2001-954721  
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
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 JP 2004530105 T 20040930 JP 2002-554718  
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PRIORITY APPLN. INFO.: US 2001-260261P P  
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 US 2001-260300P P  
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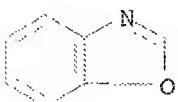
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 AB A surface-selective nonlinear optical technique, such as second harmonic or sum frequency generation, is used to detect target-probe binding reactions or their effects, at an interface, without the use of labels. In addition, the direction of the nonlinear light is scattered from the interface in a well-defined direction and therefore its incidence at a detector some distance from the interface may be easily mapped to a specific and known location at the interface.

IT 273-53-0D, Benzoxazole, derivs.

RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (method and apparatus using a surface-selective nonlinear optical technique)

RN 273-53-0 HCAPLUS

CN Benzoxazole (CA INDEX NAME)



IC ICM G01N033-543

CC 9-1 (Biochemical Methods)  
Section cross-reference(s): 1  
ST app surface selective nonlinear optical technique; biochip  
optical imaging hybridization drug screening protein DNA RNA  
IT Cooperative phenomena  
(antagonism; method and apparatus using a surface-selective nonlinear  
optical technique)  
IT Apparatus  
(array; method and apparatus using a surface-selective nonlinear  
optical technique)  
IT Surface electric charge  
(biol.; method and apparatus using a surface-selective nonlinear  
optical technique)  
IT Unsaturated compounds  
RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(cyanines; method and apparatus using a surface-selective nonlinear  
optical technique)  
IT Second-harmonic generation  
(electrooptical; method and apparatus using a surface-selective  
nonlinear optical technique)  
IT Imaging  
(endoscopy; method and apparatus using a surface-selective nonlinear  
optical technique)  
IT Wave  
(evanescent, reflection; method and apparatus using a  
surface-selective nonlinear optical technique)  
IT Cyanine dyes  
(hemicyanine; method and apparatus using a surface-selective nonlinear  
optical technique)  
IT Cyanine dyes  
(indodicarbo-; method and apparatus using a surface-selective  
nonlinear optical technique)  
IT Ion channel  
RL: ANT (Analyte); ARG (Analytical reagent use); ANST (Analytical  
study); USES (Uses)  
(ligand-gated; method and apparatus using a surface-selective  
nonlinear optical technique)  
IT Proteins  
RL: PRP (Properties)  
(membrane; method and apparatus using a surface-selective nonlinear  
optical technique)  
IT Affinity  
Animal cell  
Animal tissue  
Azo dyes  
Cyanine dyes  
Electrostatic force  
Fiber optics  
Interface  
Labels  
Latex  
Mathematical methods  
Microarray technology  
Molecular recognition  
Nanoparticles  
Optical detectors  
Optical sensors  
Planar waveguides (optical)  
Protein sequences  
Semiconductor materials

Simulation and Modeling  
 Sum-frequency generation  
 UV radiation  
 Virus  
     (method and apparatus using a surface-selective nonlinear  
     optical technique)  
 IT Neuropeptides  
     RL: ANT (Analyte); ANST (Analytical study)  
     (method and apparatus using a surface-selective nonlinear  
     optical technique)  
 IT Antibodies and Immunoglobulins  
     Antigens  
     Carbohydrates, analysis  
     Enzymes, analysis  
     Haptens  
     Hormones, animal, analysis  
     Ligands  
     Nucleic acids  
     Nucleosides, analysis  
     Oligonucleotides  
     Oligosaccharides, analysis  
     Peptide nucleic acids  
     Peptides, analysis  
     Polynucleotides  
     Receptors  
     Toxins  
     cDNA  
     RL: ANT (Analyte); ARG (Analytical reagent use); ANST (Analytical  
     study); USES (Uses)  
     (method and apparatus using a surface-selective nonlinear  
     optical technique)  
 IT Proteins  
     RL: ANT (Analyte); ARG (Analytical reagent use); PRP (Properties);  
     ANST (Analytical study); USES (Uses)  
     (method and apparatus using a surface-selective nonlinear  
     optical technique)  
 IT DNA  
     RNA  
     RL: ARG (Analytical reagent use); ANST (Analytical study); USES  
     (Uses)  
     (method and apparatus using a surface-selective nonlinear  
     optical technique)  
 IT Polyenes  
     RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
     (method and apparatus using a surface-selective nonlinear  
     optical technique)  
 IT Polyimides, analysis  
     RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
     (method and apparatus using a surface-selective nonlinear  
     optical technique)  
 IT Glass, uses  
     RL: DEV (Device component use); USES (Uses)  
     (method and apparatus using a surface-selective nonlinear  
     optical technique)  
 IT Metals, uses  
     RL: DEV (Device component use); USES (Uses)  
     (method and apparatus using a surface-selective nonlinear  
     optical technique)  
 IT Polyamide fibers, uses  
     RL: DEV (Device component use); USES (Uses)

(method and apparatus using a surface-selective nonlinear optical technique)

IT Phospholipids, properties  
RL: PRP (Properties)  
(method and apparatus using a surface-selective nonlinear optical technique)

IT Fluids  
(microfluids; method and apparatus using a surface-selective nonlinear optical technique)

IT Egg  
(oocyte; method and apparatus using a surface-selective nonlinear optical technique)

IT Biosensors  
(optical; method and apparatus using a surface-selective nonlinear optical technique)

IT Silanes  
RL: DEV (Device component use); USES (Uses)  
(organosilanes; method and apparatus using a surface-selective nonlinear optical technique)

IT Nucleic acid bases  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(pairing; method and apparatus using a surface-selective nonlinear optical technique)

IT Phosphates, analysis  
RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(phosphoramidates; method and apparatus using a surface-selective nonlinear optical technique)

IT Electrooptical effect  
(second-harmonic generation; method and apparatus using a surface-selective nonlinear optical technique)

IT 61-73-4, Methylene blue 92-84-2, Phenothiazine 103-33-3D,  
derivs. 103-33-3D, Azobenzene, sulfonyl derivs. 108-78-1D,  
Melamine, derivs. 198-55-0D, Perylene, derivs. 273-53-0D  
, Benzoxazole, derivs. 288-42-6D, Oxazole, cycloalkano and diaryl  
derivs. 1283-93-8 2321-07-5D, Fluorescein, derivs. 3784-99-4D,  
Stilbazium, derivs. 5998-92-5D, aryl derivs. 17082-33-6D,  
derivs. 25087-26-7D, Polymethacrylic acid, derivs. 25265-76-3D,  
Diaminobenzene, derivs. 38620-93-8, Stilbazole 70380-75-5D, aryl  
derivs. 110360-50-4 155862-95-6 155863-00-6 439858-43-2  
439858-44-3D, derivs.  
RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(method and apparatus using a surface-selective nonlinear optical technique)

IT 1303-00-0, Gallium arsenide, uses 1306-23-6, Cadmium sulfide, uses  
1306-24-7, Cadmium selenide, uses 7440-06-4, Platinum, uses  
7440-22-4, Silver, uses 7440-57-5, Gold, uses 13463-67-7,  
Titanium oxide, uses 14014-97-2, Gallium phosphate 14693-82-4,  
Indium phosphate  
RL: DEV (Device component use); USES (Uses)  
(method and apparatus using a surface-selective nonlinear optical technique)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L24 ANSWER 6 OF 14 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 2001:399458 HCAPLUS  
DOCUMENT NUMBER: 135:220319  
TITLE: Synthetic receptors as sensor coatings for  
molecules and living cells

AUTHOR(S): Dickert, Franz L.; Hayden, Oliver; Halikias, Konstantinos P.

CORPORATE SOURCE: Institute of Analytical Chemistry, Vienna University, Vienna, A-1090, Austria

SOURCE: Analyst (Cambridge, United Kingdom) (2001), 126(6), 766-771

CODEN: ANALAO; ISSN: 0003-2654

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

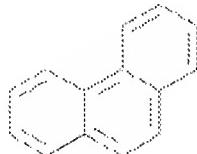
AB Noncovalent molecularly imprinted polymers are applied as sensitive coatings to planar waveguides and mass-sensitive devices for the selective detection of various groups of analytes in the gaseous and aqueous phases. Cavity imprinting in the bulk of the sensor material as well as surface imprinting techniques were used to enrich analytes ranging from sub-nanometers to micrometers in analyte size. The coated devices provide sensitivity to e.g. polycyclic aromatic hydrocarbons, xanthine derivs., complex coffee samples and whole microorganisms.

IT 85-01-8, Phenanthrene, analysis

RL: ANT (Analyte); ANST (Analytical study)  
(analytes and imprinting mols.; synthetic receptors as sensor coatings for mols. and living cells)

RN 85-01-8 HCPLUS

CN Phenanthrene (CA INDEX NAME)

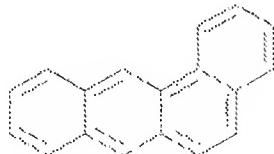


IT 56-55-3, Benz[a]anthracene

RL: ANT (Analyte); ANST (Analytical study)  
(analytes; synthetic receptors as sensor coatings for mols. and living cells)

RN 56-55-3 HCPLUS

CN Benz[a]anthracene (CA INDEX NAME)



CC 80-2 (Organic Analytical Chemistry)

Section cross-reference(s): 10, 17, 37

IT Optical sensors

Surface acoustic wave sensors

(synthetic receptors as sensor coatings for mols. and living cells)

IT 58-08-2, Caffeine, analysis 58-55-9, Theophylline, analysis

83-32-9, Acenaphthene 85-01-8, Phenanthrene, analysis

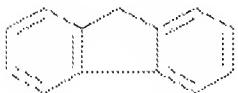
91-20-3, Naphthalene, analysis 120-12-7, Anthracene, analysis

129-00-0, Pyrene, analysis 198-55-0, Perylene  
 RL: ANT (Analyte); ANST (Analytical study)  
 (analytes and imprinting mols.; synthetic receptors as sensor  
 coatings for mols. and living cells)

IT 56-55-3, Benz[a]anthracene 218-01-9, Chrysene  
 RL: ANT (Analyte); ANST (Analytical study)  
 (analytes; synthetic receptors as sensor coatings for mols. and  
 living cells)

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L24 ANSWER 7 OF 14 HCPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1995:692957 HCPLUS  
 DOCUMENT NUMBER: 123:288647  
 TITLE: Polymeric waveguides for passive and  
 active optical interconnection  
 AUTHOR(S): Yardley, James T.; Beeson, Karl W.; Ferm, Paul;  
 Knapp, Charles; McFarland, Michael; Nahata,  
 Ajay; Wu, Chengjiu  
 CORPORATE SOURCE: Allied-Signal Inc., Morristown, NJ, 07962, USA  
 SOURCE: Polymer Preprints (American Chemical Society,  
 Division of Polymer Chemistry) (1994),  
 35(2), 92  
 CODEN: ACPPAY; ISSN: 0032-3934  
 PUBLISHER: American Chemical Society, Division of Polymer  
 Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Electrooptic response and thermal stability of a member of a new  
 family of fluorene-based cardo polymers were reported. The  
 materials described come very close to providing the required  
 performance characteristics for practical waveguide  
 devices.  
 IT 86-73-7D, Fluorene, derivs., cardo polymers  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (electrooptic response and thermal stability of fluorene-based  
 cardo polymers as waveguides for passive and active  
 optical interconnection)  
 RN 86-73-7 HCPLUS  
 CN 9H-Fluorene (CA INDEX NAME)



CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 73  
 ST polymeric waveguide electrooptic thermal stability;  
 fluorene based cardo polymer electrooptic thermal  
 IT Waveguides  
 (electrooptic response and thermal stability of fluorene-based  
 cardo polymers as waveguides for passive and active  
 optical interconnection)  
 IT Cardo polymers  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (fluorene-based; electrooptic response and thermal stability of

fluorene-based cardo polymers as waveguides for passive  
and active optical interconnection)

IT 86-73-7D, Fluorene, derivs., cardo polymers  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(electrooptic response and thermal stability of fluorene-based  
cardo polymers as waveguides for passive and active  
optical interconnection)

L24 ANSWER 8 OF 14 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1993:467276 HCAPLUS

DOCUMENT NUMBER: 119:67276

TITLE: Device and method for detection of compounds  
which intercalate with nucleic acids

INVENTOR(S): Weetall, Howard H.

PATENT ASSIGNEE(S): United States Dept. of Commerce, USA

SOURCE: PCT Int. Appl., 28 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 9310266	A1	19930527	WO 1992-US9916	
				199211
				20

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W: AU, CA, JP

RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE

AU 9331402	A	19930615	AU 1993-31402	
				199211
				20

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PRIORITY APPLN. INFO.:	US 1991-796391	A
		199111
		22

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WO 1992-US9916	A
	199211
	20

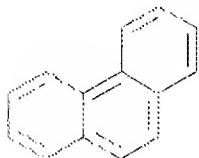
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AB A compound which intercalates with a nucleic acid is detected or determined in a sample by placing a fluorescent intercalating agent and a sample in close proximity to a **waveguide** coated with a nucleic acid and allowing them to react so that the sample competes with the fluorescent intercalating agent for nucleic acid binding sites. Excitation light is passed through the **waveguide** to excite the fluorescent intercalating agent coming within the evanescent wave; radiated light is detected from the fluorescent intercalating agent at the initiating end with a photodetector, and compared with that observed in the absence of sample. The **waveguide** may be an optical fiber or a plate. The method may be used to detect toxic substances in air, groundwater, etc. Thus, 1  $\mu$ mol ethidium bromide in a 10- $\mu$ L sample of rainwater was placed in contact with a silica fiber optic **waveguide** coated with double-stranded DNA and reacted for 15 min. Light of wavelength 500 nm was passed through the fiber, and all radiation

exiting the end face was collected with a lens and directed to a photodetector.

IT 85-01-8D, Phenanthrene, metal derivs. 86-73-7D,  
9H-Fluorene, derivs.  
RL: ANST (Analytical study)  
(nucleic acid-intercalating, intercalating agent determination by competition with, on nucleic acid-coated waveguide)

RN 85-01-8 HCPLUS  
CN Phenanthrene (CA INDEX NAME)



RN 86-73-7 HCPLUS  
CN 9H-Fluorene (CA INDEX NAME)



IC ICM C12Q001-68  
ICS C12M001-34  
CC 9-5 (Biochemical Methods)  
Section cross-reference(s): 4  
ST DNA intercalator detn optic fiber; nucleic acid  
intercalator detn waveguide  
IT Dyes  
(acridine, nucleic acid-intercalating, intercalating agent determination  
by competition with, on nucleic acid-coated waveguide)  
IT Poisons  
(determination of, by nucleic acid intercalation, nucleic acid-coated  
waveguide and competing fluorescent intercalating agent  
for)  
IT Actinomyces  
(intercalating agent determination by competition with, on nucleic  
acid-coated waveguide)  
IT Nucleic acids  
RL: ANST (Analytical study)  
(intercalating agents for, determination of, waveguide and  
competing fluorescent intercalating agent for)  
IT Optical fibers  
Plates and Trays  
(nucleic acid-coated, as waveguides for nucleic  
acid-intercalating agent determination, competing fluorescent  
intercalating agent in relation to)  
IT Waveguides  
(nucleic acid-coated, for nucleic acid-intercalating agent determination,  
fluorescent intercalating agent for)  
IT Air analysis  
Blood analysis  
(nucleic acid-intercalating compds. determination in, nucleic acid-coated

waveguide and competing fluorescent intercalating agent  
for)

IT Fluorescent substances  
Aflatoxins  
Epoxides  
RL: ANST (Analytical study)  
(nucleic acid-intercalating, intercalating agent determination by competition with, on nucleic acid-coated waveguide)

IT Deoxyribonucleic acids  
Ribonucleic acids  
RL: ANST (Analytical study)  
(waveguide coated with, for intercalating agent determination by competition with fluorescent intercalating agent)

IT Quinones  
RL: ANST (Analytical study)  
(anthracyclines, nucleic acid-intercalating, intercalating agent determination by competition with, on nucleic acid-coated waveguide)

IT Molecular association  
(intercalation, agents, determination of, competing fluorescent intercalating agent and nucleic acid-coated waveguide for)

IT Aromatic compounds  
RL: ANT (Analyte); ANST (Analytical study)  
(polycyclic, determination of, by nucleic acid intercalation, nucleic acid-coated waveguide and competing fluorescent intercalating agent for)

IT Hydrocarbons, uses  
RL: ANST (Analytical study)  
(polycyclic, nucleic acid-intercalating, intercalating agent determination by competition with, on nucleic acid-coated waveguide)

IT 7732-18-5, Water, analysis  
RL: ANST (Analytical study)  
(nucleic acid-intercalating compds. determination in, nucleic acid-coated waveguide and competing fluorescent intercalating agent for)

IT 65-61-2, Acridine orange 66-97-7D, Furocoumarin, derivs.  
85-01-8D, Phenanthrene, metal derivs. 86-73-7D,  
9H-Fluorene, derivs. 91-22-5D, Quinoline, derivs. 92-62-6,  
3,6-Acridinediamine 92-82-0D, Phenazine, derivs. 92-84-2D,  
Phenothiazine, derivs. 147-14-8 260-94-6D, Acridine, derivs.  
486-25-9D, Fluorenone, derivs. 492-22-8D, Thianthrenone, derivs.  
1239-45-8, Ethidium bromide 1404-00-8, Mitomycin 4440-80-6D,  
derivs. 4803-27-4, Anthramycin 7440-06-4D, Platinum, complexes  
65589-70-0, Acriflavine 148937-53-5, Norphilin A  
RL: ANST (Analytical study)  
(nucleic acid-intercalating, intercalating agent determination by competition with, on nucleic acid-coated waveguide)

L24 ANSWER 9 OF 14 HCPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1993:120431 HCPLUS

DOCUMENT NUMBER: 118:120431

TITLE: Miniaturized sensor for ionizing radiation,  
especially for biomedical applications

INVENTOR(S): Lefkowitz, Steven M.; Leugers, Mary A.;  
Brownell, Steven J.; Helmer, Deborah C.; Kastl,  
Patrick E.; Chrisman, Ray; Langvardt, Patrick W.

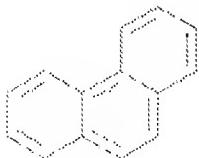
PATENT ASSIGNEE(S): Dow Chemical Co., USA

SOURCE: U.S., 8 pp.

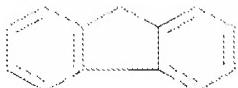
CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
US 5166073	A	19921124	US 1989-347692	198905 05
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PRIORITY APPLN. INFO.:		US 1989-347692		
		198905 05		
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- AB An optical sensor is disclosed which is useful for the detection of ionizing radiation emitted from an analyte in a fluid. The sensor is composed of a permeable scintillator having a high surface area to scintillator volume ratio and an optical waveguide located in working relation to the scintillator to collect light photons generated in response to an ionizing radiation source. The sensor is especially useful for biomedical applications. Increased sensitivity allows for miniaturization and implantation in a blood vessel of a small exptl. animal. The scintillator may be anthracene, naphthacene, pyrene, carbazole, etc. Schematics of the sensor are included. When the sensor of the invention was used to measure <sup>14</sup>C-labeled 1-methoxy-2-propanol in samples of rat blood, the obtained log-log plot of the results was linear with relatively little scatter, indicating that the sensor was stable over a wide range of activity. The sensor was also used to determine <sup>14</sup>C-labeled salicylic acid in the hepatic-portal and peripheral circulation of a dog. The pharmacokinetic results showed that the measured absorption rate, steady-state concentration, and elimination rate for salicylic acid in the blood corresponded to values using *in vitro* methods.
- IT 85-01-8, Phenanthrene, uses 86-73-7, 9H-Fluorene  
 RL: USES (Uses)  
 (as scintillator, in sensor for ionizing radiation-emitting analyte in fluid, for pharmacokinetic and other biomedical applications)
- RN 85-01-8 HCAPLUS  
 CN Phenanthrene (CA INDEX NAME)



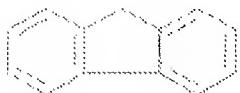
RN 86-73-7 HCAPLUS  
 CN 9H-Fluorene (CA INDEX NAME)



IC H01L070-00  
 INCL 436057000  
 CC 9-1 (Biochemical Methods)  
 Section cross-reference(s): 1, 8  
 IT Optical fibers  
 Scintillators  
 (in sensor for ionizing radiation-emitting analyte in fluid, for pharmacokinetic and other biomedical applications)  
 IT Waveguides  
 (optical, in sensor for ionizing radiation-emitting analyte in fluid, for pharmacokinetic and other biomedical applications)  
 IT 85-01-8, Phenanthrene, uses 86-73-7, 9H-Fluorene  
 86-74-8, Carbazole 91-20-3, Naphthalene, uses 92-24-0,  
 Naphthacene 120-12-7, Anthracene, uses 129-00-0, Pyrene, uses  
 132-64-9, Diphenylene oxide 135-48-8, Pentacene 206-44-0,  
 Fluoranthene 213-46-7, Picene 218-01-9, Chrysene 258-31-1,  
 Hexacene  
 RL: USES (Uses)  
 (as scintillator, in sensor for ionizing radiation-emitting analyte in fluid, for pharmacokinetic and other biomedical applications)

L24 ANSWER 10 OF 14 HCPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1991:546206 HCPLUS  
 DOCUMENT NUMBER: 115:146206  
 TITLE: Correlation of single-mode fiber radiation response and fabrication parameters  
 AUTHOR(S): Friebel, E. Joseph; Askins, Charles G.; Shaw, Cathy M.; Gingerich, Michael E.; Harrington, Calvin C.; Griscom, David L.; Tsai, Tsung Ein; Paek, Un Chul; Schmidt, William H.  
 CORPORATE SOURCE: AT and T Bell Lab., Princeton, NJ, 08540, USA  
 SOURCE: Applied Optics (1991), 30(15), 1944-57  
 CODEN: APOPAL; ISSN: 0003-6935  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Statistically significant correlations were established between certain fabrication parameters of matched clad, single-mode optical fiber waveguides and their response to an ionizing radiation dose of 2000 rad. The recovery data measured at -35° following exposure were fit to nth-order kinetic behavior where the adjustable parameters are the initial and permanent incremental losses ( $A_0$  and  $A_f$ , resp.), the half-life of attenuation  $\tau$ , and the order of kinetics  $n$ . The set of fibers chosen for anal. had Ge-doped silica cores. In fibers with Ge-F doped silica clads,  $A_0$  correlates with the concentration of Ge-doped into the fiber core;  $A_f$  correlates with the ratio of oxygen to reagent used during core deposition; and  $\tau$  and  $n$  correlate with a two-way interaction of core oxygen and fiber draw speed. In P-F-doped clad fibers, the P concentration correlates with the order of the kinetics of recovery.  
 IT 86-73-7, Fluorene

RL: PRP (Properties)  
 (optical fibers using, fabrication parameters and  
 radiation response of)  
 RN 86-73-7 HCPLUS  
 CN 9H-Fluorene (CA INDEX NAME)

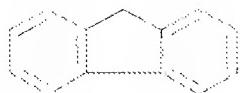


CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 ST optical fiber waveguide radiation response  
 fabrication  
 IT Radiation, chemical and physical effects  
 (on optical fiber waveguides)  
 IT Waveguides  
 (optical, fiber, fabrication parameters and radiation  
 response of)  
 IT 86-73-7, Fluorene 7440-56-4, Germanium, properties  
 7631-86-9, Silica, properties  
 RL: PRP (Properties)  
 (optical fibers using, fabrication parameters and  
 radiation response of)

L24 ANSWER 11 OF 14 HCPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1990:541834 HCPLUS  
 DOCUMENT NUMBER: 113:141834  
 TITLE: Plasma-assisted deposition of integrated  
 optic waveguides  
 AUTHOR(S): Gawne, D. T.; Nourshargh, N.; Kandasamy, I.;  
 Starr, E. M.  
 CORPORATE SOURCE: Dep. Mater. Technol., Brunel Univ.,  
 Uxbridge/Middlesex, UK  
 SOURCE: Surface Engineering (1990), 6(2),  
 107-12  
 CODEN: SUENET; ISSN: 0267-0844  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

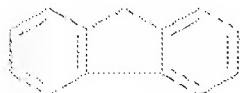
AB A plasma assisted CVD technique for fabrication of optical planar waveguides on silica substrates is described. Silica films doped with germania were deposited at 1000-1100° with <0.3 dB cm<sup>-1</sup> attenuation, sharp refractive index profiles, and satisfactory adhesion and integrity. Deposition was achieved at temps. down to 100°, but resultant film attenuation adhesion, and integrity are substantially inferior. Codeposition of F improves the mech. properties, while cladding and buffer layers are expected to enhance the optical performance of the waveguides.

IT 86-73-7, Fluorene  
 RL: PEP (Physical, engineering or chemical process); PROC (Process)  
 (codeposition of, in plasma assisted chemical vapor deposition of  
 integrated optical waveguides)  
 RN 86-73-7 HCPLUS  
 CN 9H-Fluorene (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 ST plasma chem vapor deposition silica waveguide; germania  
 silica deposition waveguide  
 IT Waveguides  
     (optical, plasma-assisted chemical vapor deposition of germanium-doped silica films for)  
 IT 86-73-7, Fluorene  
     RL: PEP (Physical, engineering or chemical process); PROC (Process)  
         (codeposition of, in plasma assisted chemical vapor deposition of integrated optical waveguides)  
 IT 1310-53-8, Germanium dioxide, uses and miscellaneous  
     RL: USES (Uses)  
         (plasma-assisted chemical vapor deposition of optical waveguides from silica film and)  
 IT 7631-86-9, Silica, uses and miscellaneous  
     RL: USES (Uses)  
         (plasma-assisted deposition of optical waveguides from germania and)

L24 ANSWER 12 OF 14 HCPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1989:222220 HCPLUS  
 DOCUMENT NUMBER: 110:222220  
 TITLE: Signal dispersion in single-mode fiber-optic waveguides with a fluorine-doped cladding  
 AUTHOR(S): Karasek, Miroslav  
 CORPORATE SOURCE: Ustav Radiotech. Elektron., CSAV, Prague, Czech.  
 SOURCE: Slaboproudý Obzor (1989), 50(1), 17-21  
 CODEN: SLOZAE; ISSN: 0037-668X  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Czech  
 AB A comparison of the results of calculating the spectral characteristics of chromatic dispersion of single-mode fiber-optic waveguides with a F-doped cladding with those obtained by measurement is given. A math. model is used to study the effects of refractive index-profile defects of the waveguide core and cladding detected by measuring the refractive index profile of the preform. Chromatic dispersion was measured by the phase method. Good agreement was obtained between the calculated and measured values of com. types of optical waveguides.  
 IT 86-73-7, Fluorene  
     RL: PRP (Properties)  
         (quartz optical fibers with cladding containing, signal dispersion in single-mode)  
 RN 86-73-7 HCPLUS  
 CN 9H-Fluorene (CA INDEX NAME)



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 ST fiber optical fluorine cladding dispersion  
 IT Optical dispersion  
     (in quartz single-mode optical fibers with fluorine-doped cladding)  
 IT Optical fibers  
     (quartz, single-mode, with fluorine-doped cladding, signal dispersion in)  
 IT 60676-86-0, Vitreous silica  
 RL: USES (Uses)  
     (optical fibers from, with fluorene-doped cladding, signal dispersion in single-mode)  
 IT 86-73-7, Fluorene  
 RL: PRP (Properties)  
     (quartz optical fibers with cladding containing, signal dispersion in single-mode)

L24 ANSWER 13 OF 14 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1987:81211 HCAPLUS  
 DOCUMENT NUMBER: 106:81211  
 TITLE: Single optical fiber sensor for measuring the partial pressure of oxygen  
 INVENTOR(S): Murray, Richard C., Jr.; Lefkowitz, Steven M.  
 PATENT ASSIGNEE(S): Gould, Inc., USA  
 SOURCE: Eur. Pat. Appl., 21 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 190830	A2	19860813	EP 1986-300264	198601 16
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EP 190830	A3	19880427		
R: BE, DE, FR, GB, IT, NL				
JP 61178646	A	19860811	JP 1986-21326	198602 04
<--				
PRIORITY APPLN. INFO.:			US 1985-698282	A
198502 04				
<--				

AB A miniaturized, fast, sensitive O<sub>2</sub> sensor for use in medical applications consists of a plastic optical waveguide having a cladding and a core. A portion of the core is exposed, plasticized, and a fluorescent, O<sub>2</sub>-sensitive dye is integrated therein. A 250-μm diameter plastic optical fiber having a polyacrylic core and a fluorinated acrylic cladding was dipped at one end in AcOEt to dissolve the cladding. After removal of the cladding, the exposed core was dipped into a solution of (4,7-diphenyl-1,10-phenanthroline) Ru(II) perchlorate and a plasticizer (e.g. diisobutyl phthalate) in CH<sub>2</sub>Cl<sub>2</sub>. The other end of

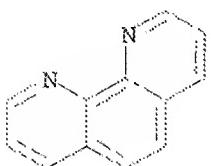
the fiber is adapted receive light from a light source and to provide an outlet for fluoresced light to go to a signal detector. The intensity of fluorescence is dependent on the partial pressure of O<sub>2</sub> in the environment. The device is responsive to changes in the partial pressure of O<sub>2</sub> of 1-5 mmHg.

IT 66-71-7D, 1,10-Phenanthroline, derivs., transition metal complexes, salts

RL: ANST (Analytical study)  
(in oxygen sensor, plasticized matrix on fiber-optic waveguide containing)

RN 66-71-7 HCPLUS

CN 1,10-Phenanthroline (CA INDEX NAME)



IC ICM G01N021-64  
ICS G01N021-77

CC 9-1 (Biochemical Methods)  
Section cross-reference(s): 79

ST oxygen sensor fluorescence waveguide; fiber optics  
oxygen sensor fluorescence; ruthenium phenanthroline oxygen sensor

IT Paraffin waxes and Hydrocarbon waxes, biological studies

RL: BIOL (Biological study)  
(polymer plasticizer, in oxygen sensor, oxygen-responsive fluorescent salt on fiber-optic waveguide in relation to)

IT Vinyl acetal polymers

RL: ANST (Analytical study)  
(butyral, oxygen sensor optical waveguide core containing, oxygen-sensitive fluorescent salt in)

IT Transition metals, compounds

RL: ANST (Analytical study)  
(complexes, phenanthroline derivative, salts, in oxygen sensor, plasticized matrix on fiber-optic waveguide containing)

IT Waveguides

(optical, fiber, plasticized polymer core containing oxygen-responsive fluorescent salt in, as oxygen sensor)

IT 141-78-6, Ethyl acetate, biological studies

RL: BIOL (Biological study)  
(as solvent, for optical waveguide cladding removal in oxygen sensor manufacture)

IT 66-71-7D, 1,10-Phenanthroline, derivs., transition metal complexes, salts 7439-88-5D, Iridium, 1,10-phenanthroline derivative complexes, salts 7440-04-2D, Osmium, 1,10-phenanthroline derivative complexes, salts 7440-16-6D, Rhodium, 1,10-phenanthroline derivative complexes, salts 7440-18-8D, Ruthenium, 1,10-phenanthroline derivative complexes, salts 63373-04-6D, salts 75213-31-9

RL: ANST (Analytical study)  
(in oxygen sensor, plasticized matrix on fiber-optic waveguide containing)

IT 9002-86-2, Polyvinyl chloride 9003-20-7, Polyvinyl acetate

RL: ANST (Analytical study)

(oxygen sensor optical waveguide core containing,  
oxygen-sensitive fluorescent salt in)  
IT 129-00-0D, Pyrene, derivs. 198-55-0D, Perylene, derivs.  
RL: ANST (Analytical study)  
(oxygen-sensitive fluorescent dye, in oxygen sensor, fiber-optic waveguide in relation to)  
IT 65-85-0D, Benzoic acid, derivs. 84-69-5, Diisobutyl phthalate  
88-99-3D, derivs. 111-20-6D, Sebacic acid, derivs. 124-04-9D,  
Adipic acid, derivs.  
RL: ANST (Analytical study)  
(polymer plasticizer, in oxygen sensor, oxygen-responsive  
fluorescent salt on fiber-optic waveguide in  
relation to)  
IT 7782-44-7, Oxygen, biological studies  
RL: BIOL (Biological study)  
(sensor for, plastic optical waveguide and  
oxygen-sensitive fluorescent dye in plasticized matrix in  
relation to)  
IT 64-17-5, Ethanol, biological studies 67-64-1, Acetone, biological  
studies  
RL: BIOL (Biological study)  
(solvent, for expansion of optical waveguide  
core in oxygen sensor manufacture)  
IT 75-09-2, Methylene chloride, biological studies 109-99-9,  
Tetrahydrofuran, biological studies  
RL: BIOL (Biological study)  
(solvent, for expansion of, optical waveguide  
core in oxygen sensor manufacture)

L24 ANSWER 14 OF 14 HCPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1987:46867 HCPLUS  
DOCUMENT NUMBER: 106:46867  
TITLE: Optical sensor for monitoring the  
partial pressure of oxygen  
INVENTOR(S): Murray, Richard C., Jr.; Lefkowitz, Steven M.  
PATENT ASSIGNEE(S): Gould, Inc., USA  
SOURCE: Eur. Pat. Appl., 21 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 190829	A2	19860813	EP 1986-300263	198601 16 ---
EP 190829 R: BE, DE, FR, GB US 4752115	A3	19880427		
	A	19880621	US 1985-699515	198502 07 ---
JP 61182557	A	19860815	JP 1986-21327	198602 04 ---

PRIORITY APPLN. INFO.:

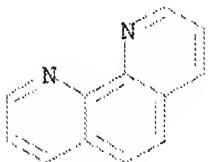
US 1985-699515

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198502  
07

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- AB An optical sensor for determination of pO<sub>2</sub> in various environments for medical applications consists of a miniature, easily fabricated device made of a single optical fiber designed for remote applications, which is not subject to the effects of membrane contamination, and is suitable for use in small channels such as blood vessels and single-lumen medical catheters. A 250-μm plastic optical fiber was cut at 1 end at a 20-30° angle from the fiber axis, and was dipped into a solution consisting of 0.0254 g tris(4,7-diphenyl-1,10-phenanthroline)ruthenium(II) perchlorate, 1.00 g PVC, and plasticizer (e.g. 1.00 g diethyl phthalate) in 25 g THF to form a plasticized polymer coating on the fiber containing O<sub>2</sub>-sensitive fluorescent dye. The other end of the fiber was adapted to receive light and to provide an outlet for fluorescent light to go to a signal detector. The intensity of fluorescence is related to the pO<sub>2</sub> in the environment. The sensitivity of the device is .apprx.1-5 mm Hg of O<sub>2</sub>.
- IT 66-71-7D, 1,10-Phenanthroline, derivs., transition metal complexes, salts  
 RL: ANST (Analytical study)  
 (in oxygen sensor, plasticized matrix on fiber-optic waveguide containing)
- RN 66-71-7 HCPLUS
- CN 1,10-Phenanthroline (CA INDEX NAME)



- IC ICM G01N021-64  
 ICS G01N021-77
- CC 9-1 (Biochemical Methods)  
 Section cross-reference(s): 79
- ST oxygen sensor fluorescence waveguide; fiber optics  
 oxygen sensor fluorescence; ruthenium phenanthroline oxygen sensor
- IT Polymers, uses and miscellaneous  
 Rubber, silicone, uses and miscellaneous  
 Urethane polymers, uses and miscellaneous  
 RL: USES (Uses)  
 (plasticized, oxygen-responsive fluorescent salt in, on fiber-optic waveguide in oxygen sensor)
- IT Vinyl acetal polymers  
 RL: USES (Uses)  
 (butyral, plasticized, oxygen-responsive fluorescent salt in, on fiber-optic waveguide in oxygen sensor)
- IT Transition metals, compounds  
 RL: ANST (Analytical study)  
 (complexes, with phenanthroline derivs., in oxygen sensor, plasticized matrix on fiber-optic waveguide containing)
- IT Waveguides

- (optical, fiber, in oxygen sensor, oxygen-responsive  
fluorescent salt immobilized on, with plasticized polymer)
- IT 7782-44-7, Oxygen, analysis  
RL: ANT (Analyte); ANST (Analytical study)  
(determination of, sensor for, oxygen-responsive fluorescent salt in  
plasticized polymer on fiber-optic waveguide  
in)
- IT 66-71-7D, 1,10-Phenanthroline, derivs., transition metal  
complexes, salts 7439-88-5D, Iridium, phenanthroline derivative  
complexes, salts 7440-04-2D, Osmium, phenanthroline derivative  
complexes, salts 7440-16-6D, Rhodium, phenanthroline derivative  
complexes, salts 7440-18-8D, Ruthenium, phenanthroline derivative  
complexes, salts 63373-04-6 75213-31-9  
RL: ANST (Analytical study)  
(in oxygen sensor, plasticized matrix on fiber-optic  
waveguide containing)
- IT 9002-86-2, Polyvinyl chloride 9003-53-6, Polystyrene 9011-14-7,  
Polymethyl methacrylate  
RL: ANST (Analytical study)  
(plasticized, oxygen-responsive fluorescent salt in, on fiber-  
optic waveguide in oxygen sensor)
- IT 84-61-7, Dicyclohexyl phthalate 84-77-5, Didecyl phthalate  
119-06-2, Ditridecyl phthalate  
RL: ANST (Analytical study)  
(polymer plasticizer, in oxygen sensor, immobilized  
oxygen-responsive fluorescent salt on fiber-optic  
waveguide in relation to)
- IT 77-92-9D, Citric acid, derivs. 88-99-3D, Phthalic acid, derivs.  
111-20-6D, Sebacic acid, derivs. 124-04-9D, Adipic acid, derivs.  
RL: ANST (Analytical study)  
(polymer plasticizers, in oxygen sensor, immobilized  
oxygen-responsive fluorescent salt on fiber-optic  
waveguide in relation to)

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